Decision 01-06-035 June 14, 2001

BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

Order Instituting Rulemaking on the Commission's Proposed Policies and Programs Governing Energy Efficiency, Low-Income Assistance, Renewable Energy and Research Development and Demonstration.	Rulemaking 98-07-037 (Filed July 23, 1998)

INTERIM OPINION: WASTE HEAT RECOVERY AND RELIABILITY STANDARDS FOR SECTION 399.15(b) DISTRIBUTED GENERATION INITIATIVES

1. Summary

This decision adopts a waste heat recovery standard for non-renewable technologies applying for distributed generation incentives under the Commission's Self-Generation Incentive Program adopted in Decision (D.) 01-03-073. We adopt the waste heat recovery and efficiency standards for qualifying facilities set forth in Pub. Util. Code § 218.5.

We also address the Emergency Petition of Southern California Edison Company (SCE) to Modify D.01-03-073, filed on May 17, 2001. SCE requests that we remove the requirement that incentive payments for fossil-fired facilities be paid only if those facilities make a demonstrable contribution to the reliability of transmission or distribution. We deny the Petition and reaffirm the reliability requirements set forth in D.01-03-073. However, given the current electricity crisis facing California, it is important to bring new generation capacity on-line this year. Therefore, it is appropriate to suspend the transmission and distribution reliability requirement for fossil-fueled projects that are seeking funding this year.

2. Background

Pub. Util. Code §399.15(b) codifies Assembly Bill (AB) 970, which was signed by the Governor on September 6, 2000. Among other things, §399.15(b) requires the Commission to establish incentives for distributed generation. Distributed generation includes technologies such as internal combustion engines, microturbines, small gas turbines, wind turbines, photovoltaics, fuel cells and cogeneration that are installed on the customer side of the utility meter, and provide electricity for a portion or all of the customer's electric load.

In response to AB 970, the Commission directed the Energy Division to develop an incentive program for public comment. In their comments, parties expressed concern over providing incentives to non-renewable technologies. To mitigate these concerns, the Commission determined that Level 2 and 3 technologies, i.e., fuel cells utilizing non-renewable fuels, microturbines, small natural gas turbines and internal combustion engines must utilize waste heat recovery at the customer site in order to be eligible for incentive payments. In addition, the Commission required that any fossil-fired facility (Level 3) must contribute to the reliability of the transmission or distribution system, in order to qualify for incentives under the program.

With respect to the heat recovery standards, the Commission directed the Energy Division to work with interested parties to develop recommended standards for Commission consideration and approval. On May 2, 2001, the Energy Division submitted for comment a report summarizing proposals submitted by the program administrators of the self-generation program: Pacific Gas and Electric Company (PG&E), SCE, Southern California Gas Company (SoCal), and San Diego Gas and Electric Company (SDG&E)/San Diego Regional Energy Office (SDREO). Energy Division received comments on the report on May 9 from PG&E, SCE, National Resources Defense Council/American Council for an Energy Efficient Economy (NRDC/ACEEE), Onsite Energy Corporation (Onsite), Ingersoll-Rand and RealEnergy, Inc. (RealEnergy).

On May 17, 2001, SCE filed an Emergency Petition To Modify D.01-03-073 (Petition). SCE requests that the Commission eliminate the reliability requirement for fossil-fired facilities. PG&E filed comments, as did SoCal, SDG&E and SDREO jointly (Joint parties) in support of the Petition.

3. Waste Heat Recovery Proposals

In the Energy Division report and subsequent comments, parties present several waste heat recovery proposals for our consideration, as summarized below.

3.1 Joint Parties (SoCal, SDG&E and SDREO)

Joint Parties propose a minimum system efficiency requirement of 40%, calculated as total electrical plus total thermal output as a ratio to total fuel input. For projects under 250kW, Joint Parties propose that this standard must be met over any three months of the year. Larger projects from 250kW to 1 MW must meet the standard over the entire year.

Joint Parties assert that their proposed 40% efficiency ratio represents an improvement over existing "peaker" generation, which often utilizes less than 24% electrical efficiency. Additionally, Joint Parties believes that providing a seasonal variation for units under 250kW could increase the number of eligible participants by recognizing the needs of smaller facilities. Small facilities such as small hospitals, lodgings, nursing homes, restaurants, small office complexes, retail establishments and schools often have very small thermal loads that vary based on season. A standard allowing small projects to utilize waste heat recovery on a seasonal basis opens the program to more participants.

In its workshop report, Energy Division recommends the adoption of this standard for similar reasons. Onsite and Ingersoll-Rand also support the standard proposed by the Joint Parties, arguing that it is appropriately inclusive and meets the policy goals of the Commission and the Legislature.

3.2 PG&E

PG&E objects to the Joint Parties' proposal on three grounds. First, PG&E argues that the proposed definition of waste heat recovery does not achieve meaningful heat recovery and reuse. Second, PG&E contends that the Joint Parties' formula for calculating efficiency overstates the contribution of thermal output, thereby making it much easier for generators to claim to be efficient. Third, PG&E objects to the characterization of customers up to 250kW as "small" customers. PG&E considers customers above 35kW to be medium to fairly large customers. In PG&E's view, Joint Parties' proposed seasonal variation would allow these customers with very low overall efficiencies to qualify for incentives, which conflicts with the Commission's goal of improving the overall efficiency of the electrical generation system.

PG&E recommends that the Commission utilize existing standards for cogeneration set forth in Pub. Util. Code § 218.5 for all sizes of distributed generation:

> (a) Waste Heat Recovery: At least 5 percent of the facility's total annual energy output must be in the form of useful thermal energy.
>
> (b) System Efficiency: The useful annual electric power output plus one-half of the useful thermal output must be greater than or equal to 42.5 percent of the total annual fuel input of the system.

PG&E states that these standards are not difficult to meet for genuine projects, and the Commission has had many years of experience in applying them.

3.3 SCE

SCE also objects to the Joint Parties' proposal. In SCE's view, this standard would provide incentive payments to non-renewable generators less efficient and more polluting than combined cycle technologies.

SCE recommends the Commission adopt waste heat recovery standards that would augment Pub. Util. Code § 218.5 requirements to make them consistent with the Federal Energy Regulatory Commission (FERC) standards for qualifying facilities.[1] In addition to the waste heat recovery and system efficiency standards described under PG&E's proposal, SCE would add the following:

> For systems over 50kW, if the useful thermal output of the system is less than 15% of the total energy output of the facility, the useful power output plus one-half the useful thermal energy output must be no less than 45% of the total energy input to the system for the calendar year.

SCE states that these standards require a reasonable level of overall efficiency, are widely understood and accepted in the industry, and do not provide significant advantages or disadvantages to renewable vs. non-renewable technologies.

3.4 NRDC/ACEEE

NRDC/ACEEE object to the manner in which waste heat recovery is computed under the FERC and Pub. Util. Code § 218.5 standards. In their opinion, these standards devalue the contribution of thermal energy to output in calculating system efficiency by using only ½ of thermal output in the formula. Therefore, they would utilize the same formula for system efficiency as the Joint Parties, but would require that units maintain a minimum efficiency of 55% when operating at more than 50% capacity regardless of the power to heat ratio. In addition, NRDC/ACEEE would require that the heat recovered must equal at least 20% of the total energy output of the combined heat and power unit, regardless of the size of the unit.

NRDC/ACEEE also recommend that all units comply with the standards under development in a California Air Resources Board process mandated by Senate Bill 1298.

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[1] 18 CFR § 292.205

3.5 RealEnergy

RealEnergy opposes the use of any fuel efficiency hurdle as the sole determinant of whether a unit qualifies for incentives. Instead, Real Energy proposes an incentive scale that would encourage the most efficient use of fuel resources, but not exclude technologies that cannot cost-effectively incorporate cogeneration into the on-site generation plans.

4. Reliability Requirement For Fossil-Fired Technologies

In its Petition, SCE proposes to delete the requirement that Level 3 technologies (microturbines and internal combustion engines) provide documentation that they will enhance transmission or distribution reliability before they qualify for the incentives under the self-generation program. SCE argues that the term "enhancing reliability" in AB 970 was intended to refer to overall supply reliability, and not to the reliability of the transmission or distribution system. SCE further argues that distributed generation will improve the reliability of the distribution system only in fairly limited circumstances, and that implementation of the reliability standard adopted by D.01-03-073 could be costly and contentious. For these reasons, SCE proposes to remove the transmission and distribution reliability requirement and define "reliability" in terms of generation reliability only. The Joint Parties and Onsite support SCE's Petition, for similar reasons.

PG&E believes that either the SCE proposal or the transmission and distribution requirements contained in D.01-03-073 represent fair readings of legislative intent. Although PG&E shares SCE's overall concerns about the reliability standard adopted by D.01-03-073, PG&E proposed a compromise approach to the working group to implement the decision. Specifically, PG&E proposed paying the incentive to any unit locating in an constrained transmission local reliability area, as defined by the California Independent System Operator (ISO). In addition, the unit would need to ensure (with physical assurance capability) that customer load equivalent to the output of the unit is automatically dropped if the unit fails during local distribution peak periods. Even though this approach is not completely consistent with PG&E's view of when a

distributed generation unit will truly provide distribution reliability benefits, PG&E believes it is an appropriate way of allocating funding to a broader universe of distributed generation developers.

5. Discussion

In D.01-03-073, we were urged by several parties to exclude non-renewable systems from the distributed generation incentives program initiated pursuant to AB 970. As we stated in that decision, we had concerns about the inclusion of non-renewable systems, particularly fossil fuel applications, in the program:

> "Several parties argue that incentives are not required or warranted for non-renewable self-generation systems. They argue against funding these systems because they are less efficient and more polluting than combined cycle technologies without waste heat recovery. We find merit in these concerns. Section 399.15(b) requires the Commission to establish both 'incentives for…distributed generation to be paid for enhancing reliability" as well as "differential incentives for renewable and super clean distributed generation resources.' We agree with PG&E that many fossil fuel applications would fail to satisfy any of these criteria.[2]

To mitigate those concerns, we required that fossil fuel applications demonstrate a contribution to the reliability of the transmission or distribution system, in order to be eligible for incentives. In addition, we required that non-renewable technologies utilize waste heat recovery at the customer site.

With respect to the reliability requirement, we find no merit to SCE's arguments that this policy is inconsistent with the intent of the Legislature. The statute is silent as to what specific technologies should qualify for distributed generation incentives, how the term "distributed generation" should be defined, or how we should establish "differential" incentives or requirements for eligible technologies. However, the

[2] D.01-03-073, mimeo. p. 25.

Legislature was not silent as to its purpose, as stated in Section 2 of AB 970 (emphasis added):

> "(a) In recent years there has been significant growth in the demand for electricity in the state due to factors such as growth in population and economic activities that rely on electrical generation.
>
> "(b) In the past decade efforts to construct and operate new, *environmentally superior and efficient generation facilities* and to promote cost-effective energy conservation and demand-side management have seriously lagged.
>
> "(c) As a result, California faces potentially serious electricity shortages over the next two years, which necessitates immediate action by the state.
>
> "(d) The purpose of this act is to provide a balanced response to the electricity problems facing the state that will result in significant new investments in *new, environmentally superior electricity generation,* while also making significant new investments in conservation and demand-side management programs in order to meet the energy needs of the state for the next several years."

It is within the context of this overall Legislative purpose, as well as the specific language of § 399.15(b) that we designed the program. The language of § 399.15(b) clearly states that incentives should be used for technologies that enhance reliability, but does not define that term. It also permits us to establish "differential" incentives for renewable or super clean distributed generation resources. As we stated in D.01-03-073, a fossil-fired system is not renewable or super clean, and therefore would only qualify if it contributed to system reliability.[3] SCE's argument that "reliability" must refer to generation reliability for these technologies makes no sense in the context of the stated purpose of the statute. This would mean that the environmental impacts of distributed generation technologies were of no interest to the Legislature since, by definition, any on-

[3] *Id.*

site generating system contributes to the reliability of generation. Such an interpretation is inconsistent with the plain language of the statute.

SCE also laments that a demonstrable enhancement to the transmission or distribution system is a difficult burden to meet. This may be so, but SCE's recommendation that we therefore drop the requirement is not a viable solution. We anticipated that some of the implementation details would require further development, and this particular one is no exception.[4] Energy Division has been meeting with the program administrators to select final program details for statewide implementation, including the transmission and distribution reliability requirements for fossil-fueled applications. We note that PG&E has already proposed an approach to defining transmission and distribution reliability that appears workable and appropriate in the context of paying incentives for the AB 970 program. We direct Energy Division to make the final selections for program implementation, without further delay. No further Commission action is required by D.01-03-073 for this purpose.

In sum, our policy of establishing "differential" incentives or eligibility requirements for fossil-fired systems, e.g., requiring them to contribute to the reliability of the transmission or distribution system, is fully consistent with the intent of AB 970 and our goals for the program. We deny SCE's Emergency Petition. However, given the current electricity crisis facing California, it is important to bring new generation capacity on-line this year. Therefore, it is appropriate to suspend the transmission and distribution reliability requirement for fossil-fueled projects that are seeking funding this year.

With respect to waste heat recovery standards, we find the arguments against adopting the Joint Parties' proposal compelling. As PG&E points out, the Joint Parties' proposal does not include a minimum amount of waste heat to be recovered by a distributed generation unit. This does not satisfy our clear direction that non-renewable

[4] *Ibid*. p. 37.

technologies be required to utilize waste heat recovery at the customer site, in order to be eligible for incentives.[5] Similarly, RealEnergy's proposal ignores this direction.

PG&E and SCE correctly observe that we established a waste heat recovery requirement to address our concerns about the relative efficiency and environmental impact of non-renewable distributed generation technologies on the electrical generation system:

> "Without waste heat recovery, certain non-renewable generation technologies may be less efficient and more polluting than combined cycle technologies. Requiring that these technologies utilize waste heat recovery at the customer site mitigates these concerns and is consistent with our goal of improving the overall efficiency of the electrical generation system. " (D.01-03-073, mimeo. p. 43, Finding of Fact 16.)

However, the 40% efficiency standard proposed by the Joint Parties falls below standards used by this Commission for determining the eligibility of waste heat recovery, or "cogeneration" facilities for rate discounts.[6] As we articulated in D.90-12-019, those standards are set forth in Pub. Util. Code § 218.5:

> "Cogenerators which do not meet efficiency standards should not receive gas rate discounts. Rate discounts for cogenerators are designed to promote efficient energy production and to the extent they are provided, other customers must pay higher rates. Because of these effects on other rates, gas discounts should be provided only to customers which are engaged in 'cogeneration,' according to the efficiency standards defined for cogeneration in Section 218.5." (D.90-12-019, 38 CPUC 2d, 345, 350.)

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[5] *Ibid.* p. 26, Conclusion of Law 11, Ordering Paragraph 5.

[6] Joint Parties make reference to the new Public Resources Code §25620.10(i)(4), added by Senate Bill 1345, which defines a 40 percent standard for the California Energy Commission's grant program. But this comparison is inappropriate, as it ignores the accompanying, more stringent, emissions and reliability requirements also embodied in that section of the code (see subsections (C) and (D) of 25620.10(i)(4) but not present in their proposal.

Joint Parties propose a lower efficiency threshold (40% versus 42.5%) *and* propose to use a formula that will overstate efficiency levels, relative to the one embodied in Pub. Util. Code § 218.5. This is because the Joint Parties would credit all of the unit's thermal output towards the calculation of total output in determining system efficiency, whereas § 218.5 calculates total output using only one-half of the thermal output. Moreover, the seasonal variation proposed for units smaller than 250kW could allow these units to qualify with annual efficiencies much less than 40%, even using the Joint Parties' formula.[7]

We decline to adopt a standard that lacks a specific minimum requirement for waste heat recovery, or that significantly relaxes current efficiency standards used by this Commission.

We also agree with PG&E that there is no reason to "reinvent the wheel" with respect to waste heat recovery standards. As discussed above, to be eligible for other forms of financial incentives authorized by this Commission (e.g., rate discounts), cogenerators must meet the standards set forth in § 218.5. Adding the additional FERC standard for systems over 50kW, as SCE proposes, would introduce a dual set of standards across our incentive programs for cogenerators. Moreover, we note that the difference between the FERC and § 218.5 standard is relatively small, in terms of the threshold efficiency level (i.e., 2.5% for systems over 50kW with less than 15% useful thermal output).

With respect to NRDC/ACEEE's proposal, we do not have sufficient data or basis in this record to adopt a waste heat recovery standard and formula that has not been widely discussed, and may not be familiar to the industry. NRDC/ACEEE's recommendation that we incorporate emission standards currently under development is simply premature. However, nothing in today's decision is intended to exempt

[7] See SCE's comments, p. 3; PG&E's comments, p. 3, footnote 4.

distributed generation facilities participating in the AB 970 program from applicable emission standards, once they are developed and made effective by statute or by the California Air Resources Board.

6. Need for Expedited Consideration

Rule 77.7(f)(9) of the Commission's Rules of Practice and Procedure provides in relevant part that:

> "...the Commission may reduce or waive the period for public comment under this rule...for a decision where the Commission determines, on the motion of the party or on its own motion, that public necessity requires reduction or waiver of the 30-day period for public review and comment. For purposes of this subsection, "public necessity" refers to circumstances in which the public interest in the Commission adopting a decision before expiration of the 30-day review and comment period clearly outweighs the public interest in having the full 30-day period for review and comment. "Public necessity" includes, without limitation, circumstances where failure to adopt a decision before expiration of the 30-day review and comment period...would cause significant harm to public health or welfare. When acting pursuant to this subsection, the Commission will provide such reduced period for public review and comment as is consistent with the public necessity requiring reduction or waiver."

We balance the public interest in quickly addressing these AB 970 implementation matters against the public interest in having a full 30-day comment cycle on the proposed amendment. The programs are designed to address the current energy crisis. A reduced period for review and comment balances the need for parties' input with the need for timely action.

Comments were filed by SCE and jointly by SDG&E and SoCal.

Findings of Fact

1. Investments in new, environmentally superior electricity generation is one of the stated purposes of AB 970.

2. Distributed generation is one form of electricity generation promoted by AB 970 through new program initiatives administered by the Commission.

3. A fossil-fired system is not renewable or super clean, and therefore would qualify for incentives under § 399.15(b) only if it enhances system reliability.

4. Any distributed generation system will enhance generation reliability, since, by definition, the system is installed on the customer's side of the meter and provides electricity for a portion or all of a customer's electric load.

5. Interpreting § 399.15(b) to mean that fossil-fired systems only have to enhance generation reliability to be eligible for incentives, would fail to fully recognize the Legislature's interest in the environmental impacts of distributed generation technologies.

6. California is facing a shortage of electricity this year, with potential for rolling blackouts throughout the summer.

7. New sources of generation can alleviate the shortages and potential for blackouts.

8. Suspending the requirement that fossil-fueled projects demonstrate a transmission or distribution reliability benefit will allow more generation projects to qualify for funding under our program.

9. No further Commission action is required by D.01-03-073 to establish final implementation details for the distributed generation program.

10. The proposals by Joint Parties and RealEnergy for waste heat recovery standards do not include a minimum requirement for waste heat recovery, and therefore do not satisfy the direction in D.01-03-073 that non-renewable technologies must utilize waste heat recovery at the customer site.

11. The standard used by the Commission for determining the eligibility of cogeneration facilities for rate discounts is set forth in Pub. Util. Code § 218.5. This standard includes a minimum requirement for waste heat recovery and a minimum system efficiency ratio (output as a ratio to fuel input).

12. The Joint Parties' proposed minimum system efficiency ratio (40%) falls below the § 218.5 standard of 42.5%, and uses a formula for calculating system efficiency that overstates efficiency levels, relative to the one embodied in § 218.5. The seasonal

variation proposed for units smaller than 250kW could allow these units to qualify with annual efficiencies much less than 40%.

13. Adding the additional FERC standard for systems over 50kW, as SCE proposes, would introduce a dual set of standards across Commission incentive programs for cogenerators.

14. The difference between the FERC and §218.5 efficiency standard is relatively small, and only affects systems over 50kW with less than 15% useful thermal output.

15. There is insufficient data or basis on the record to adopt a waste heat recovery standard and formula that had not been widely discussed or used in the industry, such as the one proposed by NRDC/ACEEE.

16. NRDC/ACEEE's proposal to incorporate emission standards currently under development into waste heat recovery standards is premature.

Conclusions of Law

1. The reliability requirement set forth in D.01-03-073 for fossil-fired distributed generation resources is consistent with the stated purpose of AB 970.

2. SCE's Emergency Petition For Modification of D.01-03-073 should be denied.

3. It is reasonable to suspend the requirement that fossil-fueled projects demonstrate a transmission or distribution reliability benefit to qualify for funding under our programs for projects which seek funding this year in order to encourage the development of needed generation this year.

4. Energy Division should select final program details for statewide implementation without delay.

5. PG&E's proposal to use efficiency standards defined for cogeneration in Pub. Util. Code § 218.5 as the waste heat recovery requirement for non-renewable distributed generation technologies is reasonable, and should be adopted.

6. Distributed generation facilities participating in the AB 970 program should not be exempt from applicable emission standards, once they are developed and made effective by statute or by the California Air Resources Board.

7. The period for public review and comment on the draft decision should be reduced, pursuant to Rule 77.7(f)(9).

8. In order to proceed with the implementation of D.01-03-073 as expeditiously as possible, this decision should be effective today.

INTERIM ORDER

IT IS ORDERED that:

1. The Emergency Petition of Southern California Edison Company To Modify Decision (D.) 01-03-073, filed on May 17, 2001, is denied.

2. The requirement that fossil-fueled projects demonstrate a transmission or distribution reliability benefit in order to qualify for funding is suspended for projects seeking funding this year (through December 31, 2001).

3. In order to qualify for incentives under the self-generation program adopted by D.01-03-073, Level 2 and 3 distributed generation technologies must meet the cogeneration standards set forth in Public Utilities Code Section 218.5.

4. Energy Division shall make the final selections to implement the self-generation program on a statewide basis, without delay. These details shall include the transmission and distribution reliability requirements to be in effect for projects approved after December 31, 2001, consistent with today's decision.

This order is effective today.

Dated June 14, 2001, at San Francisco, California.

LORETTA M. LYNCH
President
HENRY M. DUQUE
RICHARD A. BILAS
GEOFFREY F. BROWN
Commissioners

Commissioner Carl W. Wood, being necessarily absent, did not participate.